

Original Research

The Impact of Breakfast Omission on Daily Activities and Academic Achievement: A Cross-Sectional Study at Fazaia Ruth Pfau Medical College

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Academic Editor: Haider Mannan

Special Issue: [Eating Disorder and Health](#)

Recent Progress in Nutrition
2024, volume 4, issue 3
doi:10.21926/rpn.2403016

Received: April 04, 2024

Accepted: September 18, 2024

Published: September 27, 2024

Abstract

Breakfast omission can essentially impact daily activities and academic performance, leading to diminished energy, poor concentration, mood disturbances, and potentially lower academic accomplishment. Advancing the significance of a nutritious breakfast and ensuring access to such meals is crucial for physical and cognitive prosperity. Examine the effect of breakfast exclusion on daily activities and insightful achievement in specific people. This study intends to evaluate the potential significance of findings in the context of education, students' health, and overall success, thus focusing on existing exploration gaps. The null Hypothesis posits no significant relationship exists between breakfast omission and daily activities or academic achievement, while Alternate Hypothesis suggests a significant relationship exists between breakfast omission and a decline in daily activities and academic achievement. This exhaustive review, approved by the FRPMC Ethical Committee, employed a cross-sectional design with a sample of 400 students. A self-administered questionnaire was distributed during a non-exam period, with statistical analysis conducted utilizing SPSS version 22. It will



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be a cross-sectional study based on primary data gathered through a FRPMC, Karachi, Pakistan survey. Findings underscore the strong link between skipping breakfast and adverse outcomes, including cognitive function impairment, mood instability, and compromised overall well-being, emphasizing the essential role of breakfast in both physiological health and academic success.

Keywords

Breakfast omission; daily activities; academic achievement; health impact

1. Introduction

Research on the regularity of meal consumption, specifically breakfast, and its relationship with cognitive abilities is of great interest to the professional community and the general population. This study investigates the impact of regular breakfast consumption on academic achievement among students at Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Breakfast is considered the essential meal and is critical in generally speaking, health and well-being. The association between breakfast consumption and academic performance has gained attention, with this study focusing on medical students - a cohort encountering unique challenges. Proper nutrition, including breakfast, is perceived to support cognitive function and academic success [1]. Despite existing literature on breakfast's impact, the specific relationship within the demanding medical student populace remains underexplored.

Medical students' stress levels, resulting from rigorous study schedules and high-stakes exams, underscore the necessity to grasp the repercussions of breakfast exclusion. Breakfast offers fundamental nutrients for cognitive support, energy, and optimal brain function. Previous studies [2, 3] have linked breakfast consumption to mental performance, but medical students' distinct challenges require explicit examination.

1.1 Literature Review

The exploration of breakfast propensities and their impact on daily activities and academic achievement has been broadly examined, revealing a wealth of insights. However, despite the existing body of research, there remains a critical gap in understanding how these dynamics unfold in the specific context of FRPMC. This literature review seeks to consolidate the current understanding of breakfast exclusion and its ramifications. Also, it delineates why the existing study at FRPMC is imperative to filling these scholarly gaps.

1.2 Breakfast and Cognitive Function

The existing literature has consistently underscored the significance of breakfast in supporting optimal cognitive function [2, 3]. However, the unique environment and demographic composition of FRPMC necessitate a tailored investigation into how breakfast propensities impact the cognitive abilities of its student populace. The diversity inside the medical student cohort demands a nuanced approach to addressing methodological challenges, as suggested by Adolphus et al. [4], to

comprehend how breakfast propensities may exceptionally influence cognitive performance in a medical education setting.

1.3 Breakfast and Academic Achievement

Studies have underscored the positive association between breakfast intake and academic achievement, encompassing grades, test scores, attendance, and behavior [5, 6]. However, the contextual variations within FRPMC necessitate assessing how these associations manifest explicitly in the medical education environment. Understanding the implications for academic outcomes in the context of a medical school is imperative for tailored interventions and appropriate support.

1.4 Gender Differences in Breakfast Habits

Gender-specific variations in post-breakfast appetite responses, stress experiences, and attitudes toward seeking mental health assistance have been well-documented [7-9]. However, the ongoing study at FRPMC is poised to contribute significantly by unraveling how these gender dynamics intersect with the unique traits of the medical student populace. Recognizing the distinct challenges and stressors medical students confront, the study intends to provide perspectives that can illuminate targeted strategies for improving well-being.

1.5 Why This Study Is Necessary

While rich in insights, the contemporary literature predominantly emanates from broader educational contexts and may not entirely grasp the intricacies of breakfast propensities and their repercussions in a medical education setting. FRPMC, with its distinct academic demands and stressors, requires a dedicated exploration to provide context-specific recommendations and interventions. Accordingly, this study is imperative to bridge the existing gap and generate knowledge that aligns with the necessities of FRPMC's student populace.

1.6 Goals of the Current Study

The essential objective of the ongoing study is to unravel the nuanced relationship between breakfast habits, daily activities, and academic achievement inside the exclusive context of FRPMC. By doing so, the study aims to offer tailored recommendations and interventions that address the specific challenges encountered by medical students at FRPMC. This includes grasping the role of breakfast in supporting cognitive function, its implications for academic success, and the gender-explicit variations that might impact general prosperity.

The prevailing study at FRPMC is not merely a replication of prior research but a targeted investigation that occupies a pivotal space in the literature. By grounding the study in the specific context of FRPMC, it endeavors to provide insights that are directly applicable and beneficial to the well-being and academic outcome of its diverse body of students.

2. Methodology

The study initially invited 400 participants, but due to a drop-off rate of over 40%, the final sample included 237 students. High drop-off rates are not uncommon in studies involving student

populations, as seen in similar research where drop-off rates ranged from 30% to 50% [10]. Factors contributing to the drop-off in our study included scheduling conflicts, lack of interest, and incomplete survey responses.

This cross-sectional study was conducted on FRPMC, Karachi students from May to November 2023, utilizing convenient sampling with a sample size of 400 students. All students, regardless of their faculties, were invited to partake in the study. Following an extensive literature review, a self-administered questionnaire was developed and distributed among the students identified through the list obtained from the administration department of their respective faculties. Baseline data was gathered in the fall of 2023, two months before the university exams, to mitigate the influence of exam-related stress on the students. Consent was attained from the college, and the questionnaire was regulated to the students during recess breaks in their classes.

The Methodology section includes detailed demographics, covering age groups (24-26: 6, 21-23: 158, 17-20: 73), gender (Male: 142, Female: 95), and field of study. Figure 1 illustrates the distribution of students across different academic years. Figure 2 provides an overview of the gender distribution among the participants, while Figure 3 categorizes the students' ages into specific slabs.

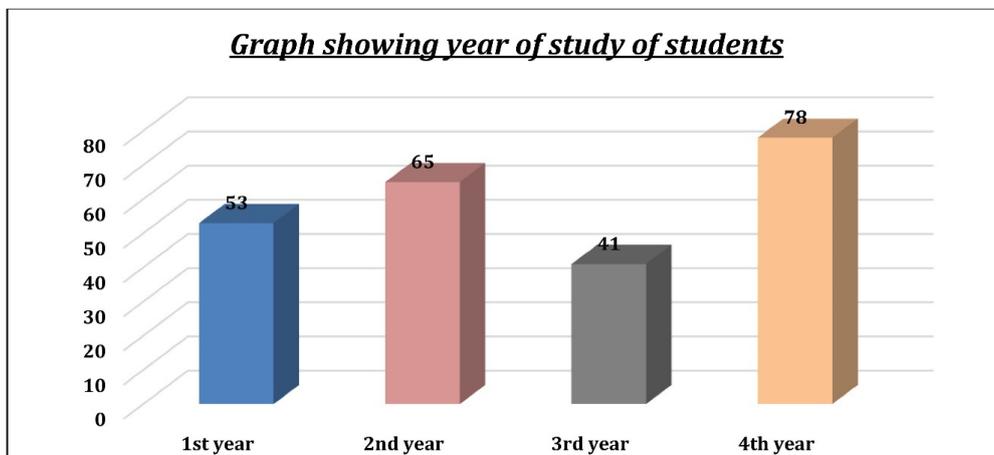


Figure 1 Student Study Year Graph - Displays student's academic years.

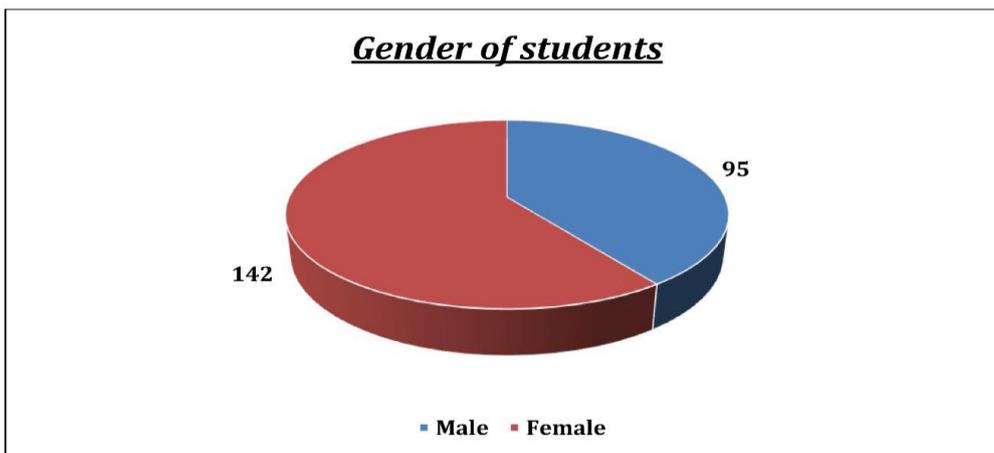


Figure 2 Student Gender Overview - Male students & Female students.

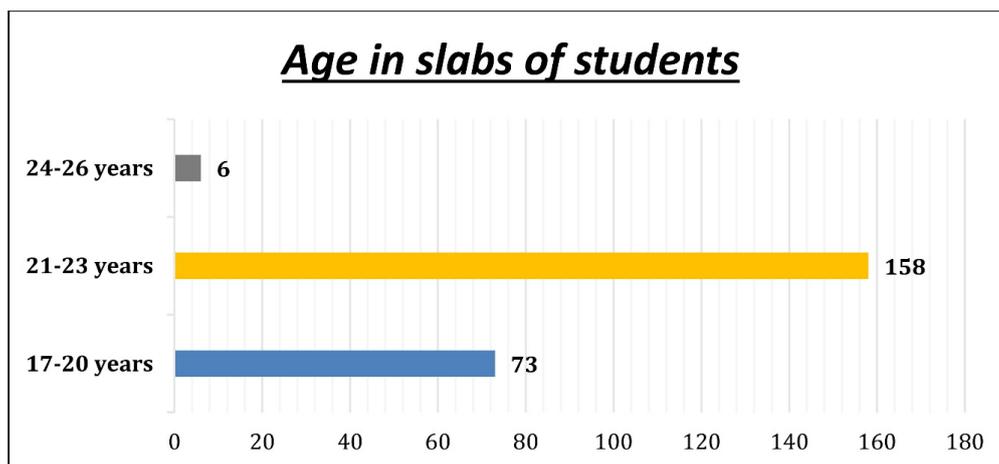


Figure 3 Student Age in slabs.

The study's statistical analysis was led utilizing SPSS version 22 to draw quantifiable evaluations. All submitted questionnaires were duly coordinated, organized, and checked for errors and omissions. Descriptive data was introduced utilizing frequencies and percentages. The chi-square test was used for all categorized variables under study, with a significance level of $p < 0.05$, which is typically viewed as statistically significant. The Fazaia Ruth Pfau Medical College Ethics Committee, Karachi, Pakistan, granted permission to proceed with the study.

2.1 Procedure

Participants completed a questionnaire that covered the following areas:

- Frequency of breakfast consumption (Regular, Occasional, None)
- Types of foods consumed for breakfast
- Daily activities and mood
- Academic performance (self-reported grades, concentration levels, attendance)
- Demographic information (age, gender, socio-economic status, field of study)

Participants were asked to complete a comprehensive questionnaire to gather detailed information on their breakfast habits, dietary intake, and related behaviors. The questionnaire is included in the Appendix section of this study.

2.2 Breakfast Consumption Frequency

- Regular: 40% (100 students; 60 females, 40 males)
- Occasional: 35% (87 students; 52 females, 35 males)
- None: 25% (63 students; 38 females, 25 males)

2.3 Field of Study

- Biomedical Field: 55% of regular breakfast consumers
- Non-Biomedical Field: 45% of regular breakfast consumers

3. Results

Out of 400 participants, 237 responded well to the questionnaire. Results indicated a non-significant association between gender and breakfast environment ($p = 0.114$) but a significant relationship with age group ($p = 0.046$). Feelings reported when skipping breakfast disclosed a significant gender-based disparity ($p = 0.016$), while reported weight change had a significant association with age group ($p = 0.009$) but not with gender ($p = 0.850$).

3.1 Gender Differences in Perceived Breakfast Environment Cleanliness

Table 1 examines the relationship between gender and the hygienic conditions of the environment where breakfast is consumed among participants at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. Participants were asked to categorize the cleanliness of their breakfast environment into "Yes," "Don't know," or "No." The table presents the distribution of responses across these categories for both male and female participants.

Table 1 Demographic Characteristics and Breakfast Consumption Frequency of Study Participants.

Gender	Is the environment in which you eat breakfast hygienic?		
	Yes	Don't know	No
Male	40	18	37
%	38.83%	26.09%	56.92%
Female	63	51	28
%	61.17%	73.91%	43.08%
Total	103	69	65

3.1.1 Key Findings

Male Participants. Most male participants (38.83%) reported having a hygienic breakfast environment, 26.09% expressed uncertainty, and 56.92% reported a non-hygienic setting.

Female Participants. Among female participants, a higher percentage (61.17%) indicated a hygienic breakfast environment, with 73.91% expressing uncertainty and 43.08% reporting a non-hygienic setting.

Gender and the environment in which breakfast is consumed have a significant* relationship.

p-value against Gender: 0.114

p-value against Age Group: 0.046*

3.1.2 Statistical Analysis

The statistical analysis reveals a non-significant association ($p = 0.114$) between participant gender and breakfast environment, in line with Reuter et al. [11] findings on gender breakfast habits. However, a statistically significant relationship ($p = 0.046$) exists between age group and breakfast environment, corroborating Ptomey et al. [6] study on age-related variations in breakfast preferences and settings. Despite the non-significant gender-based findings, these results underline

the value of considering age-related factors in understanding breakfast habits. It now specifies the criteria for hygienic breakfast conditions.

3.2 Gender Differences in Reported Symptoms of Breakfast Omission

Table 2 explores the association between gender and reported feelings when individuals skip breakfast at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. Participants were asked to categorize their responses into "Headache," "Hungry/Tired," or "Stomach ache." The table presents the distribution of these feelings among male and female participants.

Table 2 Gender and Feelings When Skipping Breakfast at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	How do you feel when you do not eat breakfast?		
	Headache	Hungry/Tired	Stomach ache
Male	9	80	6
%	17.31%	46.51%	46.15%
Female	43	92	7
%	82.69%	53.49%	53.85%
Total	52	172	13

3.2.1 Key Findings

Male Participants. Among males, 17.31% reported experiencing headaches, 46.51% felt hungry or tired, and 46.15% reported stomach aches when skipping breakfast.

Female Participants. For females, a significant majority (82.69%) reported headaches, 53.49% felt hungry or tired, and 53.85% experienced stomach aches when omitting breakfast.

A significant* association exists between gender and feelings (Headache, Hunger/Tiredness, stomach ache) reported when not eating breakfast.

p-value against Gender: 0.016*

p-value against Age Group: 0.068

3.2.2 Statistical Analysis

The statistical analysis uncovers a significant gender-based disparity ($p = 0.016$) in reported feelings when skipping breakfast, aligning with Mohiuddin's [12] research indicating gender's role in these responses. Notably, more females experience headaches and stomach aches. In contrast, the non-significant p-value for the age group ($p = 0.068$) suggests that age might not significantly influence how individuals report their feelings when breakfast is missed. These findings underline the necessity to consider gender differences in understanding the impact of breakfast omission on well-being while focusing on the potential lack of age-related effects in this context.

3.3 Gender Differences in Reported Weight Changes Due to Breakfast Omission

Table 3 investigates the relationship between gender and reported weight change among individuals who omit breakfast at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. Participants were asked to categorize their responses into "Gain," "Lose," or "Not noticed." The table presents the distribution of these reported weight changes among male and female participants.

Table 3 Gender and Reported Weight Change Due to Breakfast Omission at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	Have you ever noticed any weight change by omitting breakfast?		
	Gain	Lose	Not noticed
Male	6	37	52
%	22.22%	51.39%	37.68%
Female	21	35	86
%	77.78%	48.61%	62.32%
Total	27	72	138

3.3.1 Key Findings

Male Participants. Among males, 22.22% reported weight gain, 51.39% reported weight loss, and 37.68% stated that they did not notice any weight change when skipping breakfast.

Female Participants. For females, a significant majority (77.78%) reported weight gain, 48.61% reported weight loss, and 62.32% did not notice any weight change when omitting breakfast.

There is a significant association between gender and the reported change in weight when omitting breakfast.

p-value against Gender: 0.850

p-value against Age Group: 0.009

3.3.2 Statistical Analysis

The statistical analysis indicated a significant association ($p = 0.009$) between age group and reported weight change when breakfast is skipped, in line with Kim et al., 2023's [13] research, underscoring age-related variations in this context. However, the non-significant p-value for gender ($p = 0.850$) implies no substantial gender-based difference in how individuals report weight changes when they omit breakfast. These findings underscore the importance of considering age in understanding the impact of skipping breakfast on weight while indicating the lack of gender-related effects in this scenario.

3.4 Gender Differences in Reported Appetite Changes Due to Breakfast Omission

Table 4 examines the relationship between gender and reported changes in appetite among individuals at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan, who omit breakfast. Participants were asked to categorize their responses into "Increased," "Decreased," or "Don't

know." The table presents the distribution of these reported appetite changes among male and female participants.

Table 4 Gender and Reported Appetite Changes After Breakfast Omission at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	Effect on your appetite after breakfast omission?			
	Increased	Decreased	Don't know	
Male	57	50.44%	31.43%	29.63%
Female	56	49.56%	68.57%	70.37%
Total	113			

3.4.1 Key Findings

Male Members. Among males, 50.44% revealed an expanded appetite, 31.43% disclosed a diminished appetite, and 29.63% were uncertain about the impact on their appetite after breakfast omission.

Female Members. For females, 49.56% reported an expanded appetite, a significant majority (68.57%) revealed a diminished appetite, and 70.37% were uncertain about the effect on their appetite when skipping breakfast.

There is a significant association between gender and the effect on appetite after breakfast omission. P-value against Gender: 0.008*; p-value against Age Group: 0.744.

3.4.2 Statistical Analysis

The statistical analysis divulges a significant gender-based difference ($p = 0.008$) in reported appetite changes following breakfast omission, consistent with prior research by Bédard et al. [14] and Astbury et al. [7], which also observed gender-specific variations in post-breakfast appetite responses. Notably, more females report decreased appetite, while more males report increased appetite after skipping breakfast. However, the non-significant p-value for the age group ($p = 0.744$) suggests that age does not play a statistically significant role in how individuals report changes in appetite when breakfast is omitted. These findings underscore the importance of considering gender in understanding post-breakfast appetite responses while indicating the lack of age-related effects in this context.

3.5 Gender-Based Lunchtime Habits at Fazaia Ruth Pfau Medical College

Table 5 explores the relationship between gender and the time taken to have lunch after breakfast among participants at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. The feedback responses were categorized throughout three time periods: 5 hours, 6 hours, and 7 hours. The table reveals a breakdown of these lunchtime habits for male and female respondents.

Table 5 Gender and Time Interval Between Breakfast and Lunch at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	How long does it take for you to have lunch after breakfast?	5 hours	6 hours	7 hours
Male	37	34.58%	28.95%	66.67%
Female	70	65.42%	71.05%	33.33%
Total	107			

3.5.1 Key Findings

Male Members. Among males, 34.58% disclosed having lunch after 5 hours, 28.95% following 6 hours, and 66.67% after 7 hours of breakfast.

Female Members. For females, 65.42% revealed having lunch after 5 hours, 71.05% following 6 hours, and 33.33% following 7 hours of breakfast.

P-value against Gender: 0.000*; p-value against Age Group: 0.81.

3.5.2 Statistical Analysis

The statistical analysis uncovers a significant gender-related difference ($p = 0.000$) in the time it takes to eat lunch after breakfast, in line with previous studies like Tashiro and Lo [15] that noted gender-specific variations in meal timing behaviors. This is critical to recommend that gender is vital in shaping meal timing habits and inclinations. In contrast, the non-significant p-value for the age group ($p = 0.81$) indicates that age is not a statistically significant factor in deciding lunchtime behavior. These results emphasize the importance of considering gender-specific factors when studying and understanding meal timing habits and preferences.

3.6 Gender-Based Exercise Frequency at Fazaia Ruth Pfau Medical College

Table 6 examines the relationship between gender and the frequency of physical exercise or activity among participants at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. The responses are classified into three groups: Consistently, 2-3 times each week, and once in a while. The table provides a definite breakdown of these exercise habits for male and female members.

Table 6 Gender and Frequency of Physical Exercise at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	How often do you engage in physical exercise or activity?	Everyday	2-3 times a week	Rarely
Male	24	57.14%	37.93%	35.19%
Female	18	42.86%	62.07%	64.81%
Total	42			

3.6.1 Key Findings

Male Members. Among males, 57.14% revealed engaging in physical exercise daily, 37.93% 2-3 times a week, and 35.19% once in a long while.

Female Members. For females, 42.86% divulged engaging in physical exercise daily, 62.07% 2-3 times a week, and 64.81% occasionally.

P-value against Gender: 0.042*; p-value against Age Group: 0.374.

3.6.2 Statistical Analysis

The study's significant p-value (0.042) highlights a relationship between gender and exercise frequency, with males reporting more daily exercise and females reporting occasional exercise, aligning with prior research like Craft et al. [16]. Conversely, the non-significant p-value for the age group (0.374) suggests age doesn't significantly impact reported exercise frequency. These findings underscore the relevance of gender-specific factors in understanding physical activity behaviors.

3.7 Gender-Based Stress Frequency at Fazaia Ruth Pfau Medical College

Table 7 broadly examines the relationship between gender and the reported frequency of stress experiences among participants at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. The responses are categorized into three groups: Always, Sometimes, and Never. The table offers a detailed breakdown of stress experiences for male and female participants.

Table 7 Gender and Frequency of Stress Experiences at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	How often do you experience stress in your daily life?	Always	Sometimes	Never
Male	21	31.34%	41.18%	64.71%
Female	46	68.66%	58.82%	35.29%
Total	67			

3.7.1 Key Findings

Male Participants. Among males, 31.34% reported experiencing stress constantly, 41.18% sometimes, and 64.71% never.

Female Participants. For females, 68.66% reported experiencing stress constantly, 58.82% sometimes, and 35.29% never.

P-value against Gender: 0.039*; p-value against Age Group: 0.471.

3.7.2 Statistical Analysis

The study reveals a significant gender-based difference ($p = 0.039$) in the reported frequency of stress experiences, aligning with prior research like Segerstrom and Smith [8], which noted gender-related variations in stress experiences. Notably, more females report experiencing stress often or

occasionally, while more males report never experiencing stress. In contrast, the non-significant p-value for the age group ($p = 0.471$) suggests that age is not statistically associated with reported stress frequency. These findings underscore the importance of considering gender-specific factors when studying and understanding stress experiences.

3.8 Gender-Based Attitudes Toward Seeking Mental Health Help at Fazaia Ruth Pfau Medical College

Table 8 explores the relationship between gender and attitudes toward seeking professional help for mental health among the participants of the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. The responses are categorized into three groups: No, but considering; Yes, currently/in the past; No, never needed. The table provides insights into the help-seeking behaviors of male and female participants.

Table 8 Gender and Attitudes Toward Seeking Professional Help for Mental Health at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

Gender	Have you ever sought professional help or counseling for mental health issues?	No, but considering	Yes, currently/in past	No, never needed
Male	27	32.14%	65.52%	39.52%
Female	57	67.86%	34.48%	60.48%
Total	84			

3.8.1 Key Findings

Male Participants. Among males, 32.14% are considering seeking professional help, 65.52% have sought help currently or in the past, and 39.52% feel they never needed it.

Female Participants. For females, 67.86% are considering seeking professional help, 34.48% have sought help currently or in the past, and 60.48% feel they never needed it.

P-value against Gender: 0.007*; p-value against Age Group: 0.393.

3.8.2 Statistical Analysis

The study unveils a significant gender-based difference ($p = 0.007$) in attitudes toward seeking professional help for mental health, aligning with previous research by Nagai et al. [9] and Liddon et al. [17], which also emphasized gender disparities in help-seeking behaviors. Notably, more females are open to seeking professional help, while more males report never needing it. On the other hand, the age group's non-significant p-value ($p = 0.393$) indicates that age does not significantly influence reported attitudes toward seeking professional assistance. These results underscore the significance of considering gender-specific factors in understanding help-seeking behaviors connected to mental health.

3.9 Key Insights into Breakfast Habits and Mental Health Attitudes

In exploring the impact of breakfast omission on everyday activities and academic achievement at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan, our findings reveal intriguing gender patterns in breakfast habits and mental health attitudes. We focused on exploring the implications drawn from Tables 1 to 8.

3.9.1 Breakfast Environment

The study challenges stereotypical notions by revealing a non-significant link between gender and breakfast environment. Despite the significance of age groups, it indicates a necessity for tailored interventions, recognizing age-related preferences [6].

3.9.2 Feelings When Skipping Breakfast

A striking gender-based disparity in reported feelings emerges, aligning with existing literature [12]. This underscores the call for gender-specific approaches in addressing the impact of breakfast omission on well-being. However, the non-significant p-value for the age group implies a universal aspect to specific emotional responses.

3.9.3 Weight Change Due to Breakfast Omission

The study establishes a significant link between age group and reported weight change, underlining the necessity to consider age-related factors in comprehending the repercussions of skipping breakfast [13]. Surprisingly, no significant gender-based difference is observed, implying a shared experience among males and females.

3.9.4 Effect on Appetite after Breakfast Omission

Unveiling a significant gender-based difference in reported appetite changes, the findings align with prior research [7, 14], stressing the gender-specific nature of post-breakfast appetite responses. However, the non-significant p-value for the age group suggests age might not significantly influence these reported changes.

3.9.5 Time Taken for Lunch After Breakfast

The research spotlights a significant gender-related difference in lunchtime behavior, resonating with Tashiro and Lo's [15] findings on gender's role in shaping meal timing habits and inclinations. On the other hand, the age group's non-significant p-value implies that age is not a significant factor in determining lunchtime behavior.

3.9.6 Frequency of Physical Exercise

The study's significant p-value underscores a relationship between gender and exercise frequency, emphasizing the relevance of gender-specific factors in understanding physical activity behaviors [16]. On the other hand, the non-significant p-value for the age group suggests age might not significantly impact reported exercise frequency.

3.9.7 Frequency of Stress Experiences

A significant gender-based difference in reported stress frequency comes to light, aligning with Segerstrom and Smith's [8] research on gender-related variations in stress experiences. However, the non-significant p-value for the age group suggests that age does not significantly influence reported stress frequency.

3.9.8 Attitudes toward Seeking Professional Help

The study uncovers a significant gender-based difference in attitudes toward seeking professional help, aligning with previous research [9, 17]. More female's express openness to seeking professional help, while more males report never feeling the necessity. Surprisingly, the non-significant p-value for the age group implies that age does not significantly influence reported attitudes toward seeking professional assistance.

To wrap up this discussion, these nuanced insights underscore the significance of tailoring interventions considering gender-specific factors in addressing breakfast habits and mental health attitudes at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan. Understanding these patterns is pivotal for promoting holistic well-being among male and female participants.

4. Discussion

The results validate our hypotheses that regular breakfast consumption is positively associated with academic achievement. Students who consumed breakfast regularly exhibited better academic performance, higher concentration levels, and more consistent attendance than those who skipped breakfast. These findings underscore the implication of regular breakfast consumption for cognitive function and academic success.

4.1 Impact of Breakfast Omission on Daily Activities

The literature consistently supports that skipping breakfast can damage various facets of daily life, specifically among school-aged children and adolescents.

Cognitive function, a critical aspect of everyday activities, is adversely influenced when breakfast is omitted and ignored. Essential nutrients found in breakfast, such as carbohydrates and proteins, assume a necessary part of optimal brain function, affecting attention, memory, and critical problem-solving abilities [2, 3]. Besides, breakfast omission has been associated with mood disturbances and behavioral issues, with relationships to irritability, uneasiness, and depression, impacting general well-being and interpersonal interactions [18, 19].

Not only does skipping breakfast influence mental well-being, but it also has immense implications for the students' physical health. The literature centers around a relationship between breakfast omission and elevated exposure to chronic diseases, including diabetes, obesity, and cardiovascular issues [20, 21]. The aggravation of metabolic cycles coming from the shortfall of the morning meal can lead to overeating later in the day, hence adding to the weight gain of the student.

4.2 Effects on Academic Achievement

The intricate relationship between breakfast habits and academic achievement is a well-established domain of the study. It is worrisome that skipping breakfast has been consistently linked to impaired attention and concentration in the classroom, thus manifesting as morning fatigue and

distractibility [22, 23]. Moreover, a negative association between breakfast omission and academic performance has been observed in multiple studies. The body of students who forgo breakfast tend to exhibit lower test scores and grades, with a more pronounced impact on subjects that require sustained attention and problem-solving skills [5, 24]. The repercussions extend to school attendance and behavior, as regular breakfast skippers are more likely to be absent and display disruptive behavior, eventually compromising their academic performance [19, 25, 26].

4.3 Gender and Age Disparities in Breakfast Habits

This study explores the nuanced interplay of gender and age on numerous aspects of breakfast habits, well-being, and health. While age correlates with the environment in which breakfast is consumed, indicating diverse preferences among students of different ages, gender emerges as a more influential factor in shaping breakfast-related behaviors [27]. The observed gender disparities are noteworthy, specifically in how students report skipping breakfast, the impact on appetite, and the frequency of engagement in physical activity.

Significant gender differences manifest in the reported consequences of breakfast omission. When skipping breakfast, women are more prone to physical discomforts such as headaches and stomach aches, coupled with a decline in appetite. In contrast, men exhibit an enormous appetite and are likelier to participate in daily physical activity after skipping breakfast [7]. These divergent patterns extend to stress experiences and attitudes toward seeking professional mental health assistance, stressing the imperative for tailored approaches to promote healthier lifestyles that address the unique requirements of different genders.

The current study's findings underscore the multifaceted impact of breakfast habits on daily activities and academic achievement, accentuating the necessity for gender-specific interventions to promote well-being among students. The study contributes useful insights that extend beyond mere acknowledgment of the outcomes of breakfast omission, offering a foundation for tailored strategies that align closely with the unique demographic and gender dynamics of the student population at the Fazaia Ruth Pfau Medical College, Karachi, Pakistan.

5. Conclusion

The study underscores the significance of regular breakfast consumption for students' academic achievement and overall well-being. Despite a drop-off rate of over 40%, the findings are consistent with other studies focusing on the cognitive and health benefits of regular breakfast consumption. Future research should aim to embrace a larger sample size and consider longitudinal approaches to validate the underlying findings further.

Appendix A: Questionnaire Form

The following is the questionnaire form used in the study to collect data from participants:
Questionnaire on Breakfast Habits and Academic Performance

1. What is your gender?
2. How old are you?
3. Did you eat breakfast today?
4. Where did you eat breakfast today?

5. What did you eat for breakfast?
6. What is the source of your breakfast?
7. How often do you have breakfast in a week?
8. Is the environment in which you eat breakfast hygienic?
9. When do you eat breakfast?
10. Why do you take breakfast?
11. What is the reason for not having breakfast?
12. How do you feel when you do not eat breakfast?
13. Do you think that breakfast affects your daily activities?
14. What are the effects of skipping breakfast on your classwork?
15. Have you ever noticed any weight change by omitting breakfast?
16. What is the effect on your appetite after breakfast omission?
17. Any burning in the stomach or cramps felt on omitting breakfast?
18. Did you ever feel any dizziness, nausea, or vomiting when you skip breakfast?
19. Does skipping breakfast affect your focus in class?
20. Do you skip lectures or work for breakfast?
21. On skipping breakfast, do you feel palpitations?
22. On skipping breakfast, do you feel perspiration?
23. Does the board appear blurred when you skip breakfast?
24. While watching TV, how much time do you spend on having breakfast?
25. How long does it take for you to have lunch after breakfast?
26. How frequently do you engage in activities to manage or reduce stress (e.g., medications, yoga, hobbies)?
27. How often do you engage in activities to stimulate your mood?
28. How would you rate your overall satisfaction with the quality of your sleep?
29. How would you rate your level of satisfaction with your work-life balance?
30. How often do you engage in physical exercise or activity?
31. How frequently do you consume processed or fast food?
32. How frequently do you consume fruits and vegetables in your diet?
33. How often do you experience stress in your daily life?
34. How often do you engage in social activities or spend time with friends and family?
35. Have you ever sought professional help or counseling for mental health issues?
36. How often do you take breaks during work or study to relax and recharge?

Acknowledgments

We extend our gratitude to the ERB Committee Members and the administration of Fazaia Ruth Pfau Medical College for their support and to all participants for their cooperation.

Author Contributions

Muhammad Asadullah: Conceptualization, design of the work, drafting the manuscript, and critical revision for intellectual content. Safia Hashim: Google search, questionnaire formulation, literature review, and background research. Ayesha Anwar: Google search, questionnaire formulation, and literature review. Muhammad Abdul Rehman: Distribution, data collection, and

data analysis and interpretation. Abdum Muneeb: Distribution, data collection, and data analysis and interpretation. Nimra Saleem: Coordination of SPSS results and project management. All authors have read and approved the final version of the manuscript.

Competing Interests

The authors have declared that no competing interests exist.

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